



## Science Toolkit: Grade 6 Objective 2.A.4.d

Student Handout: Science: Grade 6 Objective 2.A.4.d

Standard 2.0 Earth/Space Science

Topic A. Materials and Processes That Shape A Planet

Indicator 4. Differentiate among sedimentary, igneous, and metamorphic rocks based upon the processes by which they are formed.

Objective d. Cite features that can be used as evidence to distinguish among the three types of rocks and relate these features to the processes that form each rock type.

Selected Response (SR) Item

Question

Use the technical passage '[Seashell Evolution in Florida](#)' to answer the following.

Which processes preserve shells in sedimentary rock?

- A. pressing and melting
- B. melting and cooling
- C. heating and uplifting
- D. layering and compacting

Correct Answer

D. layering and compacting

Question

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## Handouts

## Seashell Evolution in Florida

Dr. Geerat Vermeij is a biologist who researches seashell fossils from Florida. These seashells were originally composed of calcium carbonate, the same compound that forms limestone. The fossilization process gradually replaces some or all of the original calcium carbonate with other minerals, while maintaining the shell's original shape. The fossil is preserved in the sedimentary record.

Florida is a particularly fruitful location for fossil hunters and researchers. During the Cretaceous Period, between 144 and 65 million years ago, a shallow ocean covered much of the state. Bedrock composed of limestone formed when shells and body parts of ocean organisms were pressed together. Shells and other fossils are common in this bedrock, offering an extensive record of the history of life in Florida.

Vermeij studies changes in seashells over a period of several million years. He describes changes as an "arms race," a competition in which one side (seashell-forming mollusks) evolved stronger seashells in response to increasing strength on the other side (mollusk predators). The result was increased shell strength and increased predator strength. Vermeij describes it as follows:

"My arms-race idea evolved from the simple observation that Pacific shells appear more armored—more strongly knobbed, with a smaller opening—than tropical Atlantic shells. I thought about this difference, began to test the idea that differences in the power of shell-crushing predators was responsible, and then saw that modern organisms are better fortresses than ancient ones. In other words, some sort of escalation had occurred."